

OCT 19 1993 8031

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|--|--|---|---|--|---------------------------|---|--|
| 1. CASE NO. 930629CCCC1442 | | 2. INVESTIGATOR'S ID <div style="border: 1px solid black; padding: 2px; display: inline-block;">8 2 3 2</div> | | 3. OFFICE CODE <div style="border: 1px solid black; padding: 2px; display: inline-block;">8 7 0</div> | | <h2 style="margin: 0;">EPIDEMIOLOGIC INVESTIGATION REPORT</h2> | |
| 4. DATE OF ACCIDENT <div style="display: flex; justify-content: space-around;"> <div>YR 9 3</div> <div>MO 1 2</div> <div>DAY 0 8</div> </div> | | 5. DATE INVESTIGATION INITIATED <div style="display: flex; justify-content: space-around;"> <div>YR 9 3</div> <div>MO 0 8</div> <div>DAY 0 1</div> </div> | | | | | |
| 6. SYNOPSIS OF ACCIDENT OR COMPLAINT A toaster oven apparently ignited itself while the owners were away from home. The toaster oven was reported to have been turned off and not in use at the time. One of the owners returned and found the fire smoldering. The fire was confined to the area of the appliance. No injuries were reported. An independent forensic engineer attributed the fire to a defective control circuit component inside the toaster oven. | | | | | | | |
| 7. LOCATION (Home, school, etc.) Home Interior | | | 8. CITY Portland | | 9. STATE Oregon | | |
| 10A. FIRST PRODUCT Toaster Oven | | | 11A. TRADE/BRAND NAME, MODEL NUMBER, MANUFACTURER & ADDRESS Model: TRO 200 Black & Decker Inc., Shelton CT 06484 | | | | |
| 10B. SECOND PRODUCT | | | 11B. TRADE/BRAND NAME, MODEL NUMBER, MANUFACTURER & ADDRESS | | | | |
| 12. AGE OF VICTIM <div style="border: 1px solid black; padding: 2px; display: inline-block;">9 9 9</div> | | 13. SEX (Use numerical code) MALE -1 FEMALE -2 UNKNOWN -3 <div style="border: 1px solid black; padding: 2px; display: inline-block;">9</div> | | 14. DISPOSITION No Injury | | 15. INJURY DIAGNOSIS No Injury | |
| 16. BODY PART No Injury | | 17. RESPONDENT(S) (Mother, Friend) Owner, forensic engineer | | 18. TYPE INVESTIGATION ON SITE 1 TELEPHONE 2 OTHER 3 | | 19. TIME SPENT | |
| 20. ATTACHMENTS Documents Photos, Manual | | 21. CASE SOURCE FOA Request C335058 | | 22. REVIEWED BY <div style="border: 1px solid black; padding: 2px; display: inline-block;">8 1 4 1</div> | | <div style="display: flex; justify-content: space-around;"> <div>YR 9 3</div> <div>MO 1 0</div> <div>DAY 1 4</div> </div> | |
| 23. PERMISSION TO DISCLOSE NAMES (NON-HESS CASES ONLY) CPSC MAY DISCLOSE MY NAME <input type="checkbox"/> CPSC MAY NOT DISCLOSE MY NAME <input checked="" type="checkbox"/> | | | | | | | |
| 24. NARRATIVE (See instructions on Other Side) <div style="border: 1px solid black; padding: 10px; min-height: 100px;"> <p>The respondents were the owner of the toaster oven and the forensic engineer who investigated the fire for the owner's insurance company.</p> </div> | | | | 25. REGIONAL OFFICE DIRECTOR REVIEW DATE | | | |

MFR/REVIEWER NOTIFIED
 Comments made
 Comments attached
 Comments/Revisions
 Comments not requested
 Further notice

(USE OTHER SIDE AND ADDITIONAL SHEETS IF NECESSARY)



880522000000

PRE-EVENT

The event occurred in a single family home located in an urban neighborhood. The home is occupied by an adult married couple. The husband is a legal assistant for a law firm.

The husband said that he and his wife received their first toaster oven as a gift from his wife's father during the 1991 Christmas season. He said that they used the toaster oven primarily for toasting bread. He said that after approximately two months of normal operation, the toaster began to emit an acrid odor of overheating electrical components. He said that the toaster oven also made a buzzing sound if it was not shut off after the odor appeared. He said that the odor was so strong and unpleasant that it was impossible to remain in the room without shutting the toaster oven off.

The husband said that he opened the toaster oven housing and examined the internal electrical components. He said that he noticed that an electrical coil inside the toaster oven appeared to be discolored from heat. (The discolored coil described by the husband matched the description of the solenoid coil in the toaster oven control circuit.) The husband said that he did not believe that the toaster oven was worth repairing. He said that he did not have a receipt ~~for~~ the toaster oven which was purchased in another state. He said that he discarded the unit.

The husband said that he was shopping in a suburban membership wholesale distributor when he observed toaster ovens offered for sale. He said that the price seemed reasonable so he purchased a replacement toaster oven on impulse. He said that the replacement unit appeared to be the same model as the first toaster oven.

The husband said that he and his wife used the toaster oven for approximately two months prior to the fire. He said that they used the toaster oven for toasting bread. He said that they toasted approximately three or four pieces of bread each day. He said that there were no problems with the operation of the toaster oven until less than one week prior to the fire. He said that the toaster oven was not damaged, repaired or altered prior to the fire.

The husband said that the toaster oven began to emit the same acrid odor that the first toaster emitted. He said that he noticed the odor a few days prior to the fire. He said that he discontinued using the toaster after he noticed the odor. He said that he was not sure if he discussed the problem with his wife. He said that

she may have used the toaster one or two times after he discontinued use. He said that he would have returned the toaster oven to the dealer immediately but the store was not convenient and he did not go there often.

The husband said that he was at work but his wife was not working on the day of the fire. He said that his wife left home between 10:00 AM and 11:00 AM to go to the gym to exercise for approximately one hour. He said that the toaster oven was turned off but was still plugged into the electrical outlet. He said that the toaster oven was not used on the day of the fire.

EVENT

The husband said that the toaster apparently ignited while wife was away from home. He said that she returned home at approximately 11:30 AM and found the house full of smoke. He said that she went into the kitchen and found the toaster oven smoldering. He said that she doused the unit with water and called him at work. He said that he went home immediately. He said that the fire appeared to be out but he called the fire department to be sure that the fire was out and there wasn't any concealed smoldering inside the wall behind the toaster oven. He said that a fire engine responded and fire fighters checked to be sure that the fire was out. He said that the fire damage was confined to the immediate area of the toaster oven but there was considerable smoke damage.

POST EVENT

The husband discovered the fire caused the electrical circuit breaker to trip.

The fire was investigated by the owners insurance company. The insurance company submitted the toaster to a consulting engineering firm. A forensic engineer investigated the fire and examined the toaster oven. The forensic engineer concluded that the fire was caused as a "result of overheating of the oven due to a defective component(s) in the control circuit of the oven". Copies of the engineering report and photographs are attached to this report as exhibits.

PRODUCT IDENTIFICATION

Manufacturer: Black and Decker Inc.
6 Armstrong Road
Shelton, CT 06484

Retailer: Costco

Model: TRO200

Power Rating: 1500 Watts, 120 Volts

The product is a counter top toaster oven which was purchased new approximately two months prior to the fire. A copy of the instruction manual, photographs of the oven involved in the event, and photographs of an exemplar purchased by the forensic engineer are attached to this report as exhibits. The product was identified by the forensic engineer.

STANDARDS INFORMATION

The toaster oven is subject to voluntary standards. The instruction manual and carton for the exemplar toaster oven state that the unit is listed by Underwriter's Laboratories.

ATTACHMENTS

- Exhibit # 1: Insurance Interview Transcript
- Exhibit # 2: Letter
- Exhibit # 3: Engineer's Report
- Exhibit # 5: Photographs
- Exhibit # 4: Instruction Manual

This is Bruce McDonald and...(inaudible). Okay this is Bruce McDonald I'm interviewing [REDACTED]. Right now we're at [REDACTED] in Portland. Today's date is December 9, 1992, and the time right now is 11:50 in the morning. And this concerns a fire that happened at this address on December 8, 1992.

Q. Okay, first of all Mr. [REDACTED] could you please state your full name?

A. Yeah, [REDACTED]

Q. And can you spell the last name?

A. [REDACTED]

Q. Are you aware that I'm tape recording this interview?

A. Yes. Are you aware that I'm tape recording you?

Q. Yes.

A. Okay.

Q. And am I doing so with your permission?

A. Uh yes.

Q. And you're doing so with my permission.

A. Thank you.

Q. Uh how old are you?

A. 39.

Q. Your date of birth?

A. 7-25-53.

Q. This is your home address here?

A. Yes.

Q. Uh, are you married right now or single.

A. I'm married.

Q. And your wife's name?

A. [REDACTED]

Q. Spelling?

A. [REDACTED]

Q. Okay. Are you employed right now?

A. Yes.

Q. And who do you work for?

A. [REDACTED] Stephens with a PH, and Buckley.

Q. And what do you do there?

A. I'm a (inaudible) Legal Assistant.

Q. How long have you lived at this address?

A. About two years.

Q. And your prior address?

A. [REDACTED] Portland.

Q. In Portland?

A. Yeah.

Q. You own the house here?

A. Yes.

Q. Is the house financed?

A. Yes.

Q. And who is the mortgage company?

A. Uh, Bank of America.

Q. Umm, any other..., anybody else have any interest in the house, seconds or...>

A. No.

Q. Okay. Umm, I need your social security number?

A. [REDACTED]

Q. Okay. Now this uh..., you had a fire here at your house yesterday?

A. Yes.

Q. Who discovered the fire?

A. My wife.

Q. Do you know what time it was?

A. About 11:30.

Q. In the morning?

A. 11:15, 11:30.

Q. In the morning?

A. Yes.

Q. Okay. What time had you left the house?

A. About 8:40.

Q. Okay. Where were you at the time?

A. At work.

Q. Did she call you at work to tell you about it?

A. Yes.

Q. Okay. What did she tell you about it?

A. She was very agitated and upset and had discovered that if I'm coming home the house was filled with smoke.

Q. Did you come home?

A. I came home right away.

Q. Uh, where did the fire start?

A. She found a smoldering pile of something where the toaster oven used to be on the counter. And before she called me I think she threw a bunch of water on it to make sure it was dead out.

Q. That was in the kitchen?

A. Yes.

Q. Okay, did the fire department respond?

A. Yeah. I said if you see anything still alive, tell the fire department right away, otherwise I'll be there in 10 minutes.

Q. Okay.

A. And when I got here it was obvious to my layman's eye that the fire was out. But I still called the fire department because there was..., the thing had been against the wall and I didn't want to..., I wanted to make sure there was nothing smoldering inside. I wanted their comfort.

Q. How old was the toaster oven?

A. I bought it early in October at Costco.

Q. Of this year?

A. Yes.

Q. And what brand was it?

A. Black and Decker.

Q. Had you had any problems with it before?

A. Uh yeah. It had started to do what an earlier one had done, which is overheat basically. It didn't seem to automatically shut off the way it's supposed to.

Q. Okay. Had you used it that morning?

A. No.

Q. Okay. Did you ever have a problem with it turning itself off?

A. No.

Q. Okay, no one was here in the house at the time.

A. Right.

Q. Your wife came home and discovered it?

A. Yes.

Q. Umm, have you ever had a fire here before?

A. No.

Q. Okay. Is there anything else you'd like to add that we haven't talked about?

A. Well the fire guys said that the, you know he assured me that the cause of the blaze was due to the toaster oven. And I noticed that that circuit breaker, I went downstairs and that circuit breaker had tripped, and he commented that's probably what saved the house.

Q. Okay.

A. The power had shut off.

Q. Did they send one of their investigators out?

A. Well I don't know what these people were.

Q. This is just someone that was working...

A. Four or five guys, and a couple of senior guys. You know one of them was obviously in charge and knew what he was talking about.

Q. Okay.

A. But I don't know what his title is.

Q. Okay. Anything else you'd like to add?

A. Uh, I don't wish this on anybody.

Q. Okay. [REDACTED], have you understood all of my questions?

A. I think so.

Q. Have all of your answers been true and correct?

A. Uh, to the best of my belief and knowledge, yes.

Q. Has this recording been made with your full knowledge and consent?

A. Yes.

Q. Okay. Could you restate your name and address?

A. [REDACTED]

Q. Okay I'll shut her off.

ESLER, STEPHENS & BUCKLEY

ATTORNEYS AT LAW

2050 SECURITY PACIFIC PLAZA

1001 S.W. FIFTH AVENUE

PORTLAND, OREGON 97204-1136

FACSIMILE (503) 294-3995

TELEPHONE (503) 223-1510

GARY N. HARDIMAN
SENIOR LEGAL ASSISTANT

MICHAEL J. ESLER
JOHN W. STEPHENS
KIM BUCKLEY*

*ADMITTED IN OREGON AND WASHINGTON

August 19, 1993

File to Peggy Grundy
002 18-92
WESRO CLAIMS AUG 20 '93

Peggy Grundy, Esq.
Nationwide Subrogation Department
P.O. Box 3100
Portland, Oregon 97208

Re: Personal Matter - Claim No. 36 MP 030673

Dear Ms. Grundy:

This will confirm our discussion of August 11, 1993. I am your insured under my homeowner's policy on claim number 36 MP 030673. The claim resulted from a Black & Decker toaster oven malfunction, which caused a fire in my home in December 1992.

In connection with your claim against Black & Decker, a representative of Black & Decker has telephoned me in order to obtain my statement concerning the fire. I explained that I had provided you with such a statement shortly after the incident and that I would ask you to provide him with that statement. He indicated that would be fine. Therefore, please forward a copy of my statement to:

Mr. Larry Perepa
SIGNA
Post Office Box 90026
Bellevue, WA 98009
Attn: SIGNA Claim No. 28912807271990

Please send me a copy as well. I told Mr. Perepa I would be willing to do a follow-up interview after he read my statement if he had unanswered questions.

As we also discussed, I had damages resulting from the toaster oven malfunction that were not reimbursed by insurance. In my Sworn Statement in Proof of Loss, dated January 26, 1993, I expressly reserved the right to assert a claim for damages against Black & Decker for amounts that were not reimbursed by insurance. This will confirm that I hereby assert the following claims against Black & Decker for unreimbursed losses due to the malfunctioning of the Black & Decker toaster oven:

ESLER, STEPHENS & BUCKLEY

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1. Insurance Deductible \$ 250.00
2. Lost Wages 39.00
3. Extra Mileage (2 cars x 10 extra miles
per day x 25 days x .29
per mile) 145.00
4. Work (98 Hours x \$15/hr. of my
and my wife's time spent cleaning,
moving furniture, coordinating
contractors, and generally
dealing with the effects of the
fire, renovation work and
move-in/move-out) 1470.00
5. Inconvenience (the displacement of
my wife and I to a hotel room
during the holiday season including
Christmas and New Years'; the
stress of dealing with the
effects of the fire) 3,000.00

TOTAL: \$4,904.00

As I mentioned, this was the second Black & Decker toaster oven that went bad on me. I had second thoughts about purchasing the second one, but since it was the only model carried by Costco, I took a chance. To my chagrin, I literally got "burned" again.

Each time, the machine started to exude an acrid smell and smoke after several weeks of light use. The first one I threw out. (Since it was a gift from relatives on the east coast, I had no receipt and did not pursue a refund.) The second one, as my statement indicates, had just started to smell. A few more days, and I would have returned it, no doubt. Instead, it caught fire and caused a tremendous loss, which, fortunately, was partly covered by your insurance company. However, it could have been far worse. When a product just self-ignites without warning, it is a hazard and should be pulled from the market or recalled. I find it hard to believe that I am the only one who sees this pattern in this particular product.

I therefore wish to cooperate with you in furtherance of your claim against Black & Decker and I hereby assert my own, which you said you would tender on my behalf to Black & Decker. Thank you.

Sincerely, //

[REDACTED]
[REDACTED]
[REDACTED]
Senior Legal Assistant

March 19, 1993

TAI File 930014

Nationwide Insurance
P. O. Box 3100
Portland, OR 97208

Attn: Shelley Neitling

Re: Claim #36MP030673

Ins'd: [REDACTED]

D/I: 12-8-92

Dear Ms. Neitling:

On December 8, 1992, at approximately 11:30 A.M., a fire occurred in the residence of [REDACTED]. An electrical toaster oven was in the area of origin of the fire, and Talbott Associates, Inc. was requested to examine the oven to determine the cause of the fire. Selected photos taken during the course of the investigation are included in this report; the remainder are on file.

CONCLUSIONS

1. The Black & Decker toaster oven was in the area of origin of the fire in the kitchen in the [REDACTED] residence.
2. The first material burned was most probably the wooden splash board at the wall behind the oven.
3. Ignition of the wood was most probably the result of overheating of the oven due to a defective component(s) in the control circuit of the oven.
4. The oven is defective in that uncontrolled overheating occurred.

PROCEDURE

1. The incident toaster oven was received from [REDACTED], along with three photos taken of the fire-damaged area in the kitchen, a copy of the Use/Care book (published by

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Black & Decker), and a copy of a check in the amount of \$270.49 to Costco on October 3, 1992.

2. Additional photos of the residence and fire-damaged kitchen were received and reviewed.
3. [REDACTED] statement dated December 9, 1992, was received and reviewed.
4. The toaster oven was partially disassembled, inspected and photographed.
5. An exemplar toaster oven, identified as a Black & Decker Toast-R-Oven toaster model TRO200 was obtained. Photos of the control system of the exemplar were taken, and heating tests of various surfaces of the oven were conducted.
6. The Consumer Products Safety Commission was contacted with regard to recalls and information requested for any ongoing studies.

DATA AND OBSERVATIONS

1. A review of the photos supplied revealed the following:
 - a. Fire damage was concentrated on and above the counter to the left of the kitchen sink (fig. 1).
 - b. The toaster oven was located in the center of the fire-damaged area oriented such that the right side of the oven was in line with the area of lowest burning observed on the wall behind the oven (fig. 2).
 - c. The wooden splash board at the back of the counter was charred for a distance nearly equal to the length of the back of the oven and extended down to the counter (fig. 3).
 - d. The toaster was plugged into a wall socket to the left of the oven. The wall socket suffered no fire damage (fig. 1, arrow).
 - e. Located near the right front corner of the oven was a small pile of fire-damaged debris. It was reported by Mr. Hardiman that this debris was probably the remains of a pair of jeans lying on the counter (fig. 2, arrow).

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- f. The oven was the only electrical appliance plugged in or located within the area of origin as shown in Figures 1 and 2.
 - g. A small jar was observed against the splash board of the counter, to the right of the oven, reportedly containing sun-dried tomatoes.
2. Summary of [REDACTED] statement:
- a. [REDACTED] wife returned home at approximately 11:30 A.M. and observed a smoldering pile of debris on the kitchen counter and smoke in the kitchen and throughout the house.
 - b. [REDACTED] called [REDACTED] and he returned home to find that the fire was out. However, he called the Fire Department to make sure no fire remained.
 - c. The Black & Decker toaster oven was purchased in early October at Costco.
 - d. [REDACTED] stated that this was the second oven of this type he had had and that he had discarded the first because it would overheat and not shut off. Similarly, the incident oven had ". . . started to do what an earlier one had done, which is overheat basically. It didn't seem to automatically shut off the way it's supposed to."
 - e. The circuit breaker for the kitchen had tripped.
3. A telephone conversation was held with [REDACTED] on March 17, 1993. [REDACTED] stated the following:
- a. The debris along the right side of the heater was identified as a pair of jeans. According to Mr. [REDACTED] his wife was certain that the jeans were not physically touching the heater nor holding down the toaster switch. When questioned as to why they were so certain the toaster switch was not held down, he stated that his wife recalled being in the house for a period of approximately 20 minutes after she placed the jeans on the counter and that if the toaster switch had been held down past the time it would normally have shut off, the toaster would emit a buzzing sound that would have been audible to her.

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- b. [REDACTED] stated that the last time he used the oven, probably in the toaster mode, he smelled an "ozone"-like smell and observed a small amount of light smoke coming from the control side of the oven.
 - c. He stated that this observation, regarding smoke and odor, was identical to the first oven that he and his wife had received as a gift. The first oven was discarded after it failed to shut off in the toaster mode. [REDACTED] stated that before discarding the original oven, he removed the right side and observed that a small electric coil was partially burned. He operated the heater with the cover removed and observed that smoke was coming from the electric coil area. At that point he decided that the oven was not worth repairing and discarded it. He also stated that during the malfunctioning of the first heater, the oven emitted a buzzing sound.
4. Operation of the toaster oven (ref. figs. 4 & 5):
- a. The upper control knob (arrow A) is used for baking and heating. Both sets of two upper and two lower elements cycle on and off to maintain the selected temperature.
 - b. The indicator light (arrow B) comes on when the knob is turned. The light is bright when the elements are on and dims when the elements cycle off.
 - c. The toaster switch (arrow C) turns the elements on when depressed. Both sets of elements cycle on/off.
 - d. The Toast Color Selector (arrow D) regulates the color of the toast. When turned fully clockwise, the "Top Browning" cycle is selected.
 - e. The oven (and toaster) will shut off whenever the door is opened. A link between the door and a set of contacts causes the contacts to open, de-energizing the oven. Figure 5, arrow A, shows the link, and arrow B shows the contact set.
 - f. Temperature control is attained by opening and closing sets of contacts by means of heating elements causing metal strips to move. Arrows C and D, Figure 4, show two such elements.

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- g. The toast cycle is terminated when, due to a closing of contacts caused by a heating element, arrow D, the solenoid coil, arrow E, is energized. The plunger in the solenoid pushes the toaster lever, allowing it to move upwards and open its contacts. When this occurs, the solenoid coil is de-energized.
- 5. Inspection of the fire-incident toaster oven:
 - a. The heat pattern indicates the highest external heating occurred at the right end of the oven (figs. 6 & 7).
 - b. The interior of the oven was clean and no significant accumulation of charred material was observed. No significant amount of debris was observed on top of the oven.
 - c. The toaster switch was in the "off" position as indicated by the switch lever position in the slot when compared with the exemplar.
 - d. One of the solenoid coil leads is arced and separated. The coil has been heated throughout as indicated by the uniform color of the wire. The outside of the coil has soot deposits, and several wires at one end have suffered electrical arc damage.
 - e. The electrical contacts for the bake function are closed but not welded.
 - f. However, one contact adjacent to the oven control knob was welded in the closed position. This is the contact that turns on the indicator light when the oven control knob is turned clockwise. The position of the bake control knob could not be determined because the knob and shaft were destroyed by the fire.
 - g. Several electrical contacts located near the bottom of the toaster are damaged but not welded together.
 - h. The link connecting the door with the master contacts (shuts off all power when the door opens) is arc-damaged at one of its bends. Corresponding arc damage was observed on the adjacent wall of the oven interior (fig. 8, arrow A).
 - i. One of the wires completing the circuit to the indicator light is separated.

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6. Use/Care book - summary: The book supplied with the oven contains the following information:

On page 3, "A fire may occur if the toaster oven is covered or touching flammable materials including curtains, draperies, walls and the like, when in operation. Do not store any item on top of the appliance when in operation."

7. Summary of temperature tests on the exemplar oven: The first test that was run involved placing four temperature probes as follows: one in the oven itself; a second on the top surface covered with insulation and a board; the third on the plastic side midway (front to back) and near the top of the side; and the fourth on the back near the slotted vent.

The set temperature for the oven was increased from 350° to 500° (its maximum setting), in increments of 25°. The results of this test indicate that while the oven temperature may have slightly exceeded 500° F., the top metal surface reached a maximum of 370° F., the right side reached 175° F., and the back reached 275° F.

A second test was run in which fiberglass insulation was placed over the temperature probe on the side and the whole side was covered with approximately 2" of foam rubber (fig. 9). The oven was set to its maximum setting, and temperatures in the oven, its top, the right side, and the back were recorded over a period of 1 hour and 7 minutes. The results of this test indicate the top reached a maximum temperature of 385° F. while the side reached a maximum of 242° and the back reached a maximum of 290° F.

8. The Consumer Products Safety Commission was contacted and reported that their records show no recalls have been issued for this make and model of toaster oven. A request for information on complaints and possible ongoing studies has not yet been answered.

ANALYSIS

1. The photos, supplied [redacted], of the undisturbed fire scene indicate that the oven is in the area of origin of this small and concentrated fire. Since the oven is the only identified source of ignition in the area, the oven is the most probable ignition source for the fire.

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2. The first material ignited was probably the wooden splash board at the back of the counter. The width of the char pattern is consistent with ignition of the wood as a result of heat from the back of the oven. Tests indicate that normal operation of the oven would not ignite the wood and, therefore, it is likely that an overheating condition existed. Also, the molded sides of the oven have protuberances extending out from the back surface that do not allow the oven to be placed directly against a wall, promoting air flow and further minimizing the chance of igniting combustible wall materials during normal operation.
3. The extensive heat damage to the right side of the oven, some of the internal components of the controls adjacent to the right side of the heater, and the melting of the shield above the heating elements within the oven are all indicators of a runaway overheating condition present in the oven.
4. Since none of the primary electrical contacts controlling power to the heating elements were welded, it is most probable that the overheating condition was due to a failure of one or more of the components intended to open (de-energize) the contacts of the heating elements.
5. Based upon [REDACTED]'s observations with regard to the first oven that he experienced problems with and the significant heat and arc damage to the solenoid coil, the device that opens the contacts to the elements in the toaster mode, it is likely that a failure in the coil allowed the overheating to occur. However, the specific defect or mechanism by which the failure occurred has not been identified.
6. With regard to the presence of the clothing adjacent to the heater, it is not likely that the material was ignited during normal operation of the oven. The tests performed indicate that the sides of the heater do not reach temperatures in the range of the auto-ignition temperatures of most materials, 400 to 500° F. for wool, about 460° F. for cotton, even under the test conditions where insulation was added to concentrate the heat.
7. It is very unlikely that the oven or toaster could have turned on without either the oven knob being turned or the toaster lever being pushed down. Since the most likely scenario for the overheating condition involves the toaster function and not the oven function, the toaster lever was

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probably pushed downward to its "on" position inadvertently. It is possible that the toaster function may have been in the "on" position with the oven door open, from some prior use. If this was the case and then the toaster oven door was closed, the toaster would come on and if the solenoid coil was defective, a runaway heating condition could occur.

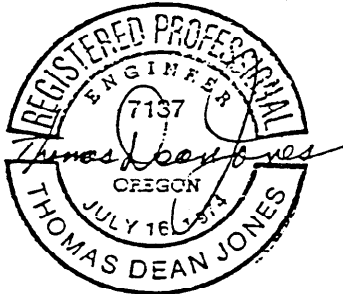
8. If the toaster was turned on and the coil was damaged or prevented from being energized (broken or arced wire), the toaster would not turn off and overheating would occur, the heat source being the heating elements.

If the coil was energized and the toaster contacts kept closed because the lever was held down or the coil plunger could not move, the coil would overheat in a very short time and, additionally, the toaster elements would continue to heat.

9. There are no devices present that would de-energize the oven if an overheating condition occurs. If such a device were present, the overheating condition would have been prevented and the fire would probably not have occurred.

Respectfully submitted,

TALBOTT ASSOCIATES, INC.



Expires 12-31-93

Thomas D. Jones, P.E.

TDJ:go

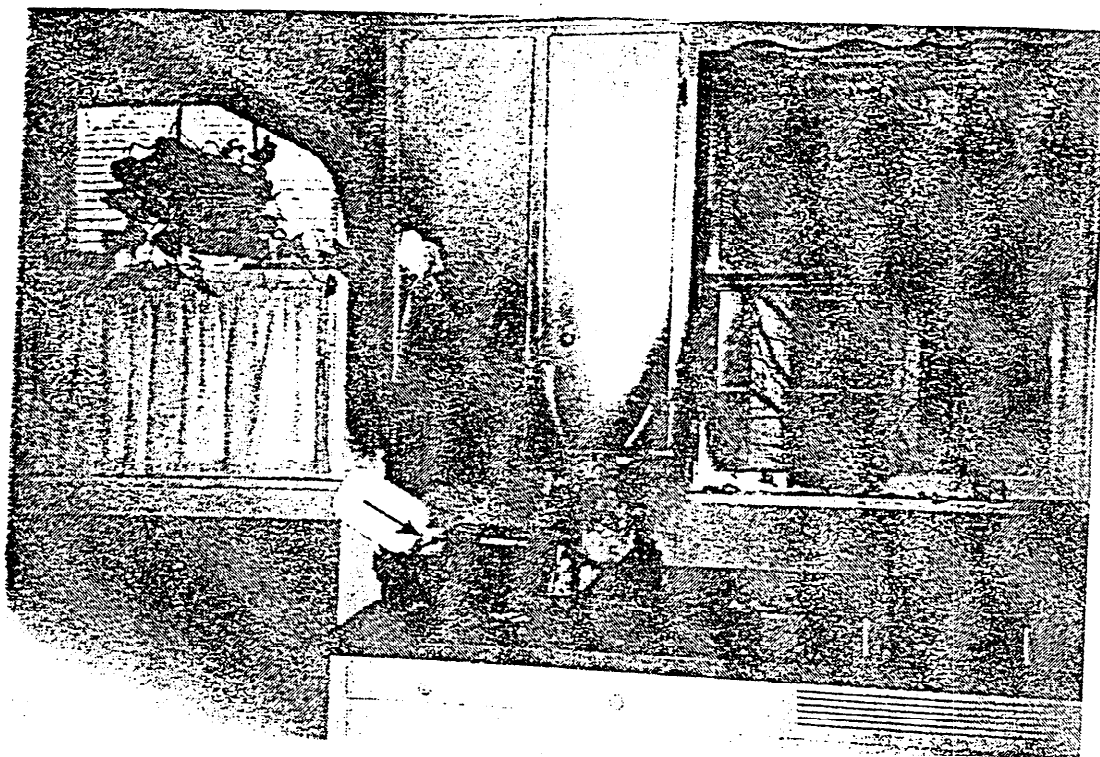


FIGURE 1



FIGURE 2



FIGURE 3

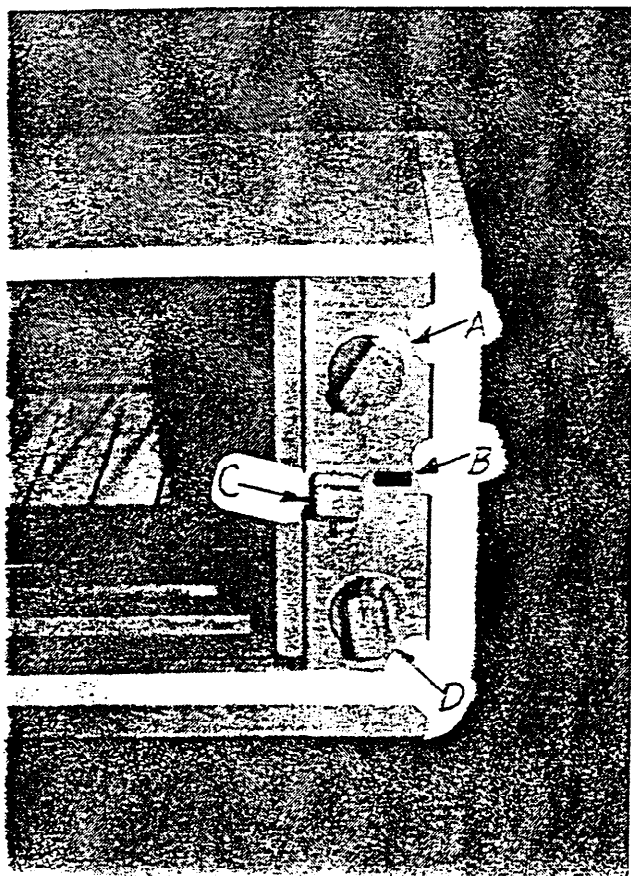


FIGURE 4

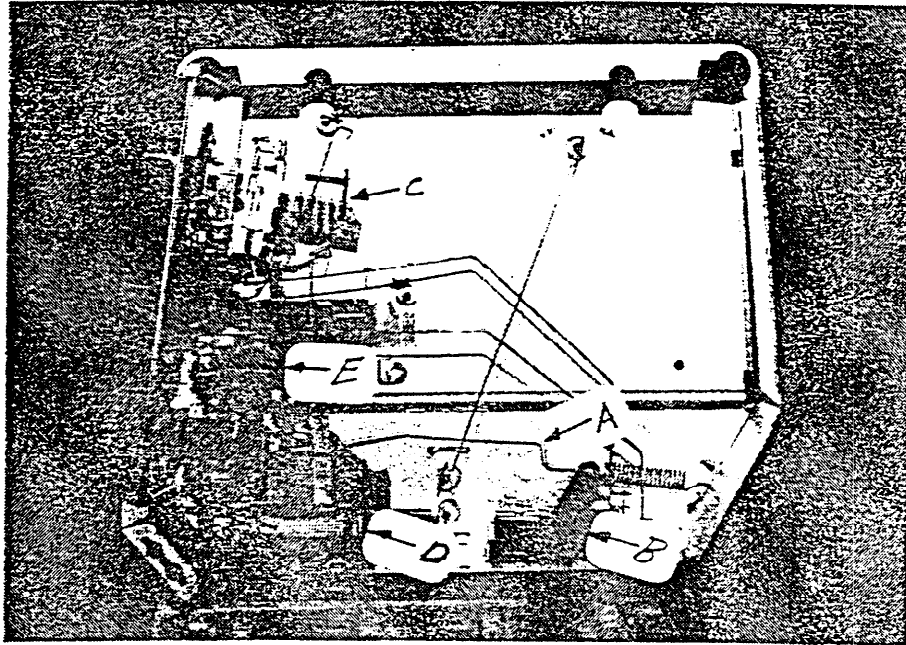


FIGURE 5

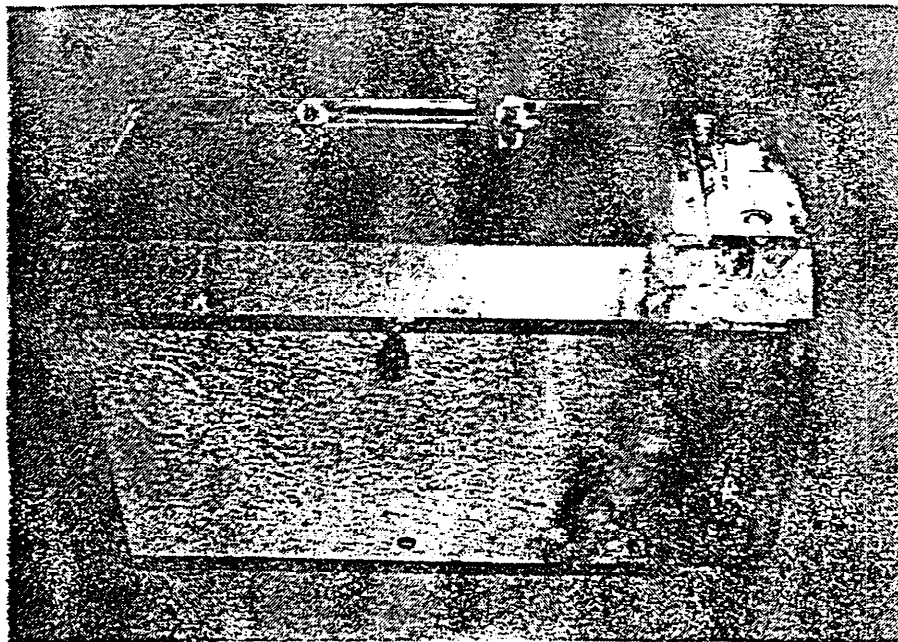


FIGURE 6

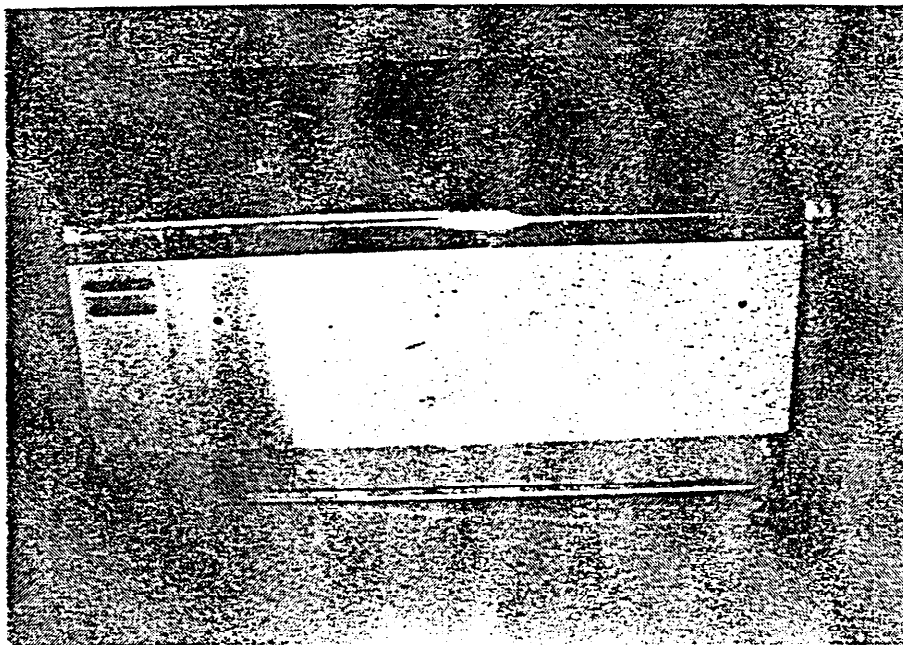


FIGURE 7

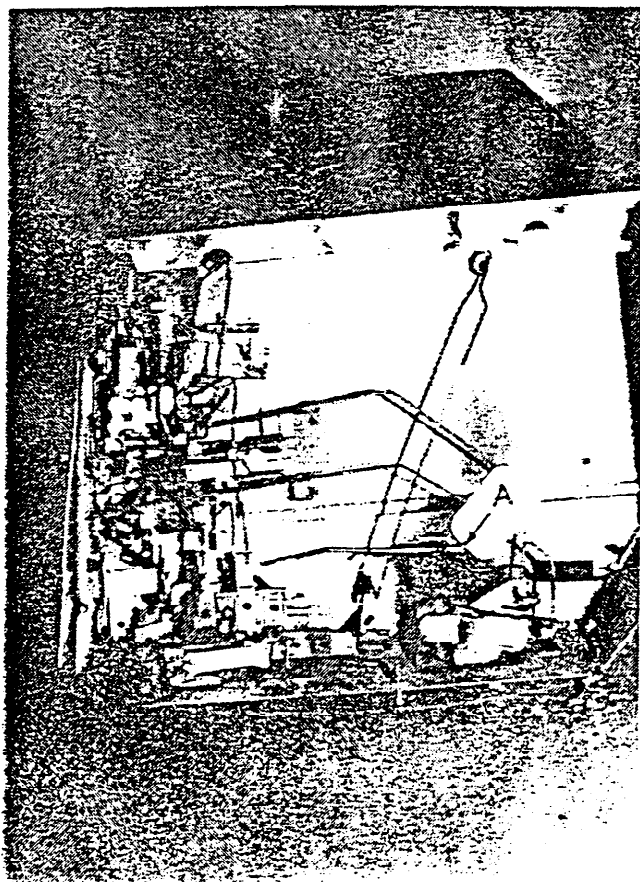


FIGURE 8



FIGURE 9